construction, Dfv is the ferrule bore diametric height, Dr1 and Dr2 are the diametric spaces required to seal a body of the valve with a bore of the ferrule, Dv1 and Dv2 are the diametric spaces required to form upper and lower margins, respectively, of an annular wall of the valve body, Dw1 and Dw2 are the diametric spaces required to form an outer wall at the upper and lower margins of the valve body, respectively, Ds1 and Ds2 are the diametric spaces required to allow for an intersticial space between an inside diameter of the ferrule and an outside diameter of the valve body along the upper and lower margins of the valve body, respectively, Div is the diametric height lost due to an inclination of the bore, and Ddv is the diametric height to assure channel drainage.

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2. (Amended) A valve for insertion into a ferrule having a given internal diameter, the valve having a sample cavity, a sampling orifice and a drain outlet, the sampling orifice and drain outlet being operatively connected to the sample cavity, a diameter of the sampling orifice can be calculated with the following formula:

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Dov < or = Dfv - [Div + Ddv + C], wherein Dov is the diametric height for orifice construction, Dfv is the ferrule bore diametric

height, Div is the diametric height lost due to an inclination of the bore, Ddv is the diametric height to assure channel drainage, and C is a constant for a particular application including the diametric height for wall thickness, the diametric height for sealing arrangements, the diametric height for interstitial spaces and the diametric height for an annular seal.

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3. A valve installed in an inclined ferrule, comprising:

a valve body;

a drainage trough formed in said valve body; and

an orifice, said orifice opening at a front of the valve body, a lower margin of said orifice forming a beginning of said drainage trough, said lower margin being located at a predetermined point along a length of an internal bore of the ferrule,

wherein a vertical plane passing through said predetermined point on the lower margin passes through a point along a bottom margin of the bore of the ferrule, and Lf is a length from a point at a rear margin of the ferrule to said point along said bottom margin, and

wherein in order for a freely draining trough to be formed in the valve body from the lower margin of the orifice to the rear

margin of the ferrule, a vertical position of the lower margin must be higher than a value of Div calculated at said point along the bottom margin, for a flush-mounting valve, the value of Div can be calculated:

Div = Lf SIN (Aa)

where Aa is an angle of an axis of the bore of the ferrule.

4. (Amended) A valve installed in an inclined ferrule in a wall of a vessel or conduit, an axis of an internal bore of said ferrule having an angle of inclination in a direction away from the vessel or conduit, comprising:

B4 a valve body, said valve body having an internal drainage path with an angle of declination in a direction away from the vessel or conduit greater than or equal to said angle of inclination of said axis of said internal bore of the ferrule.

5. The valve according to claim 4, wherein said angle of declination of said drainage path of said valve body includes an additional angle of declination Ab, wherein a total angle of

declination of the drainage trough is the sum {(-Aa) + Ab}, wherein Aa is the angle of inclination of the internal bore of the ferrule.

6. The valve according to claim 4, wherein said valve body includes an orifice formed therein, said orifice opening into a process, said drainage path beginning at a lower margin of said orifice and passing above and beyond a lower rear margin of the ferrule.

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7. (Amended) A valve assembly, comprising:

a ferrule installed in a wall in a vessel or conduit, said ferrule having an internal bore having an angle of inclination in a direction away from the vessel or conduit, said internal bore having a first, process side and a second, non-process side;

a valve fitted into said internal bore of said ferrule, said BJ valve having a valve body with an internal cavity, said valve body having an orifice in a front wall thereof, said orifice opening to said process side of said internal bore of said ferrule, and a drain passage opening to the rear thereof, said drain passage being connected to the orifice by a drainage trough, said drainage trough beginning at a bottom margin of the orifice and ending at an

opening of said drain passage, said drainage trough continuously descending in a direction away from the vessel or conduit at an angle greater than or equal to the angle of inclination of the B5 internal bore of said ferrule and passing above a lower rear margin of the internal bore of the ferrule.

Please add the following claims:

--8. The valve according to claim 4, wherein said valve body includes an orifice formed in a forward portion thereof, said orifice opening into a process within the vessel or conduit, and wherein said drainage path begins at or adjacent to a lower margin of said orifice and passes above and beyond a lower rear margin of said ferrule.

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9. The valve according to claim 4, wherein said valve body includes an orifice formed in a forward portion thereof, said orifice opening into a process within the vessel or conduit, and wherein said drainage path begins at or adjacent to a lower margin of said orifice and continuously declines at least until an exit of said valve body.

10. The valve according to claim 4, wherein said valve body includes an internal cavity therein with a sampling orifice located at a forward portion thereof, said valve body and said orifice each having a longitudinal axis extending through a center thereof, respectively, said longitudinal axis of said valve body being offset from said longitudinal axis of said orifice.

11. An apparatus for moving a sample of a flowable material through a ferrule in a wall of a vessel or conduit, comprising:

a ferrule mounted in a wall of a vessel or conduit, said ferrule having an internal bore, said internal bore being inclined such that a center of an opening of said internal bore into the vessel or conduit is lower than a center of an opening of said internal bore to an outside of said vessel or conduit;

a valve installed in said internal bore of said ferrule, said valve including a valve body, said valve body having an internal drainage path, said internal drainage path having an angle of declination greater than or equal to the angle of inclination of the axis of the internal bore of the ferrule.

12. The apparatus according to claim 11, wherein said valve body includes an orifice formed in a forward portion thereof, said orifice opening into a process within the vessel or conduit, and wherein said drainage path begins at or adjacent to a lower margin of said orifice and passes above and beyond a lower rear margin of said ferrule.

13. The apparatus according to claim 11, wherein said valve body includes an orifice formed in a forward portion thereof, said orifice opening into a process within the vessel or conduit, and wherein said drainage path begins at or adjacent to a lower margin of said orifice and continuously declines at least until an exit of said valve body.

14. A valve for use in a vessel or conduit, the valve comprising:

a valve body having an internal cavity with a sampling orifice located in a forward portion thereof, a bottom of said internal cavity continuously declining from at or adjacent to a lower margin of said orifice to at lease an exit of said valve body, said valve body and said orifice each having a longitudinal axis extending

through a center thereof, respectively, said longitudinal axis of said valve body being offset from said longitudinal axis of said orifice.

15. An apparatus for moving a sample of a flowable material through a ferrule in a wall of a vessel or conduit comprising:

a ferrule mounted in a wall of a vessel or conduit, said ferrule having an internal bore, said internal bore having a longitudinal axis;

a valve, said valve being mountable, at least partially, into said internal bore of said ferrule, said valve having an internal cavity with a sampling orifice located in a forward portion thereof, said orifice having a longitudinal axis extending through a center thereof, and wherein said longitudinal axis of said orifice is offset from the longitudinal axis of said internal bore.

16. The apparatus according to claim 15, wherein said internal cavity includes a drain passage having a forward portion extending forward to a front of the internal cavity and forming a bottom of said internal cavity, and wherein said drainage passage has a bottom axis, said bottom axis being nonparallel and declining

relative to the axis of the bore of the ferrule such that said bottom axis declines away from the front of the internal cavity such that material entering the internal cavity will drain down and out of the internal cavity.

17. The apparatus according to claim 15, wherein said longitudinal axis of said orifice is offset above said longitudinal axis of said internal bore.

18. The apparatus according to claim 17, wherein said internal cavity includes a drain passage having a forward portion extending forward to a front of the internal cavity and forming a bottom of said internal cavity, and wherein said drainage passage includes a bottom axis, said bottom axis being nonparallel and declining relative to the axis of the bore of the ferrule such that said bottom axis declines away from the front of the internal cavity such that material entering the internal cavity will drain down and out of the internal cavity.

19. The apparatus according to claim 15, wherein said longitudinal axis of said internal bore of said ferrule has an

angle of inclination in a direction away from the vessel or conduit, and said valve body includes an internal drainage path with an angle of declination in a direction away from the vessel or conduit greater than or equal to said angle of inclination of said longitudinal axis of said internal bore of said ferrule.--

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